MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

T3, 2017/ 2018

BDM7124 – DATABASE MANAGEMENT

(MBA Full Time)

4 JUNE 2018
9.00 a.m – 12.00 p.m
(3 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consist of **FIVE (4)** pages (including the cover page).

2. Answer **ALL** questions. The marks distributions are given in parentheses.

3. Write all your answers in the **Answer Booklet** provided.

Question 1 (25 Marks)

a) A database management system (DBMS) is essentially nothing more than a computerized data-keeping system. Before DBMS was invented, Information was stored using File Processing System. Explain the significant differences between a file processing system and a Database Management System.

(10 Marks)

b) Database can be designed and developed using a similar SDLC type approach, referred to as the Database Development Life Cycle (DBLC). Outline the major steps that you would take in setting up a database for a particular enterprise.

(10 Marks)

c) Explain the differences between a personal database system and an enterprise class database system

(5 Marks)

Question 2 (25 Marks)

A hospital has just contracted you to design a database. The following information is supplied to you:

- Patients are identified by SSN, name, addresses and age.
- Doctors are identified by SSN and for each doctor; name, specialty and number of years of experience must be recorded.
- Each pharmaceutical company is identified by name, specialty and years of experience.
- Each drug, trade name and formula must be recorded. Each drug is sold by a given pharmaceutical company and the trade name identifies a drug uniquely from among the products of that company. If a pharmaceutical company is deleted you need not keep track of its products any longer. Each pharmacy has a name, address and phone number.
- Doctors prescribe drugs for patients. A doctor can prescribe one or more drugs for several patients and a patient could obtain prescriptions from several doctors. Each prescription has a date and quantity associated with it.
- Pharmaceutical companies have contracts with pharmacies. A pharmaceutical company can contract with several pharmacies and a pharmacy can contract with several pharmaceutical companies. For each contract, you have to store a start date, end date and text of the contract.
- Pharmacies appoint a supervisor for each contract. There must always be a supervisor for each contract, but the contract supervisor can change over the lifetime of the contract.

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Required:

a) Prepare data modelling with emphasis on Relational Model for the given business scenario. Draw an Entity-Relationship Diagram (note: create the structure, entity, attributes, relationships, weak entity sets (if any) and cardinality constraints)

(17 Marks)

b) How would you change your design if each drug must be sold at a fixed price by all pharmacies?

(4 Marks)

c) How would your design change if design requirements are as follows: Doctor prescribes the same drug for the same patient more than once several such prescriptions may have to be stored?

(4 Marks)

Question 3 (25 Marks)

a) Database normalization is the process of restructuring a relational database in order to reduce data redundancy and improve data integrity. Illustrate when a table is said to be in 1st Normal Form, 2nd Normal Form and 3rd Normal Form?

b) Using the INVOICE table structure shown in below, prepare the dependency diagram, and normalize the structure to meet the 3rd Normal Form requirements.

(16 Marks)

Attribute Name	Sample Value	Sample Value	Sample Value	Sample Value	Sample Value
INV_NUM	211347	211347	211347	211348	211349
PROD_NUM	AA-E3422QW	QD-300932X	RU-995748G	AA-E3422QW	GH-778345P
SALE_DATE	15-Jan-2006	15-Jan-2006	15-Jan-2006	15-Jan-2006	16-Jan-2006
PROD_LABEL	Rotary sander	0.25-in. drill bit	Band saw	Rotary sander	Power drill
VEND_CODE	211	211	309	211	157
VEND_NAME	NeverFail, Inc.	NeverFail, Inc.	BeGood, Inc.	NeverFail, Inc.	ToughGo, Inc.
QUANT_SOLD	1	8	1	2	1
PROD_PRICE	$49.95	$3.45	$39.99	$49.95	$87.75

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Question 4 (25 Marks)

While working as a database analyst for a national sales organization, you are asked to be part of its data warehouse project team. Your data warehousing project group is arguing about prototyping a data warehouse before its implementation. The project group members are especially concerned about the need to acquire some data warehousing skills before implementing the enterprise-wide data warehouse.

a) What would you recommend? Explain your recommendations.

(10 Marks)

b) Suppose you are selling the data warehouse idea to your users. How would you explain to them what multidimensional data analysis is and explain its advantages?

(5 Marks)

c) A *real-time data warehouse* is a *data warehouse* that is updated (by the Extract Transform Load) the moment the transaction happens in the source system. What types of applications would benefit from real-time data warehousing?

(5 Marks)

d) How data mining can help business organizations for further growth?

(5 Marks)

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